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FINAL BASE REALIGNMENT AND CLOSURE ENVIRONMENTAL SITE SCREENING REPORTS STUDY AREA 24, NORTHWEST SWAMP UNNUMBERED FACILITY-4 (UNF-4), SOUTHEAST SWAMP UNNUMBERED FACILITY-5 (UNF-5) NTC ORLANDO FL

5/1/1997

ABB ENVIRONMENTAL

BASE REALIGNMENT AND CLOSURE ENVIRONMENTAL SITE SCREENING REPORT

STUDY AREA 24, NORTHWEST SWAMP (UNF-4) AND SOUTHEAST SWAMP (UNF-5)

NAVAL TRAINING CENTER ORLANDO, FLORIDA

UNIT IDENTIFICATION CODE: N65928
CONTRACT NO.: N62467-89-D-0317/107

MAY 1997

SOUTHERN DIVISION
NAVAL FACILITIES ENGINEERING COMMAND
NORTH CHARLESTON, SOUTH CAROLINA
29419-9010

BASE REALIGNMENT AND CLOSURE
ENVIRONMENTAL SITE SCREENING REPORT

STUDY AREA 24
NORTHWEST SWAMP (UNF-4) AND SOUTHEAST SWAMP (UNF-5)

NAVAL TRAINING CENTER
ORLANDO, FLORIDA

Unit Identification Code: N65928

Contract No.: N62467-89-D-0317/107

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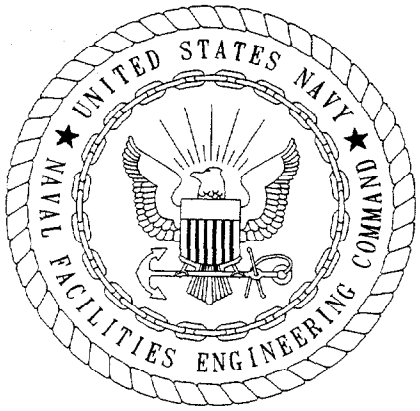
May 1997



CERTIFICATION OF TECHNICAL
DATA CONFORMITY (MAY 1987)

The Contractor, ABB Environmental Services, Inc., hereby certifies that, to the best of its knowledge and belief, the technical data delivered herewith under Contract No. N62467-89-D-0317/107 are complete and accurate and comply with all requirements of this contract.

DATE: May 13, 1997

NAME AND TITLE OF CERTIFYING OFFICIAL: John Kaiser
Task Order Manager

NAME AND TITLE OF CERTIFYING OFFICIAL: Richard Allen
Project Technical Lead

(DFAR 252.227-7036)

TABLE OF CONTENTS

BRAC Environmental Site Screening Report
Study Area 24, Northwest Swamp (UNF-4) and Southeast Swamp (UNF-5)
Naval Training Center
Orlando, Florida

LIST OF FIGURES

BRAC Environmental Site Screening Report
Study Area 24, Northwest Swamp (UNF-4) and Southeast Swamp (UNF-5)
Naval Training Center
Orlando, Florida

GLOSSARY

ABB-ES	ABB Environmental Services, Inc.
bls	below land surface
CLP	Contract Laboratory program
DQO	data quality objective
FDEP	Florida Department of Environmental Protection
FID	flame ionization detector
GPR	ground-penetrating radar
mg/kg	milligrams per kilogram
mg/ℓ	milligrams per liter
μg/ℓ	micrograms per liter
PVC	polyvinyl chloride
RBC	risk-based concentration
SA	Study Area
SVOC	semivolatile organic compound
TAL	target analyte list
TC	terrain conductivity
TCL	target compound list
UNF	unnumbered facility
USEPA	U.S. Environmental Protection Agency

1.0 STUDY AREA (SA) 24, NORTHWEST SWAMP (UNF-4) AND SOUTHEAST SWAMP (UNF-5)

This report contains information gathered during site screening activities completed at SA 24. In March of 1996, the Orlando Partnering Team determined that no further action was required at SA 24 and that the parcel was transferrable under the provisions of a Finding of Suitability to Lease or Finding of Suitability to Transfer.

1.1 SA 24, BACKGROUND AND CONDITIONS. UNF-4 (Unnumbered Facility 4) is a 25-acre undeveloped, forested swamp area (Figures 1 and 2) that acts as a drainage basin that receives runoff from several parts of the Annex. Aerial photographs from 1968 and 1971 indicate the northeastern quadrant of SA 24 was an open area. The area has since been planted with pine trees; in addition, there are scattered mounds of asphalt, concrete, and other construction debris present within the planted area. The source and extent of this debris is not known. ABB Environmental Services, Inc. (ABB-ES's), U.S. Air Force records search (ABB-ES, 1995a) indicated that UNF-4 was an active disposal area used to dispose of drums of oil, old paint cans, and perhaps even the remains of a B-52 aircraft.

UNF-5 is a 38-acre area consisting of forested wetlands and was allegedly used as a general disposal area (ABB-ES, 1995)(Figure 2).

1.2 SA 24, INVESTIGATION SUMMARY. The investigation at SA 24 consisted of geophysical surveys to determine what types and how extensive disposal activities may have been on the site and to optimize the location of soil and groundwater samples. Subsurface soil sampling and monitoring well installation and sampling was conducted to determine what contaminants, if any, are associated with geophysical anomalies and former disposal activities.

1.2.1 Geophysical Surveys

1.2.1.1 **UNF-4, Northwest Swamp** Geophysical surveys at UNF-4 consisted of magnetometer and terrain conductivity (TC) surveys within the survey area presented on Figure 2. In consideration of potentially adverse impacts to the natural habitat at UNF-4, the survey area was not cleared or graded to perform the geophysical site screening activities. Heavy undergrowth was present, which necessitated a rethinking of the 10-by-10-foot measurement grid planned prior to the investigation (ABB-ES, 1995b). Consequently, a 10-by-20-foot grid was implemented (survey lines 20 feet apart, with measurements taken every 10 feet along individual traverses). Ground-penetrating radar (GPR) was not completed at UNF-4 due to the very irregular terrain. When conducting GPR surveys, it is essential that the GPR antenna make good contact with the ground surface. With irregular terrain and heavy vegetation, a great deal of surface preparation has to occur prior to conducting the survey. The additional expense of such preparation was not warranted.

1.2.1.2 **UNF-5, Southeast Swamp** Geophysical surveys at UNF-5 (Southeast Swamp) consisted of an informal reconnaissance survey with magnetometer and TC over the unpaved access road connecting Avenue C and Eighth Street to establish if this area had been subject to disposal activities. This approach seemed appropriate after an initial site walkover in which no signs of landfilling activities were

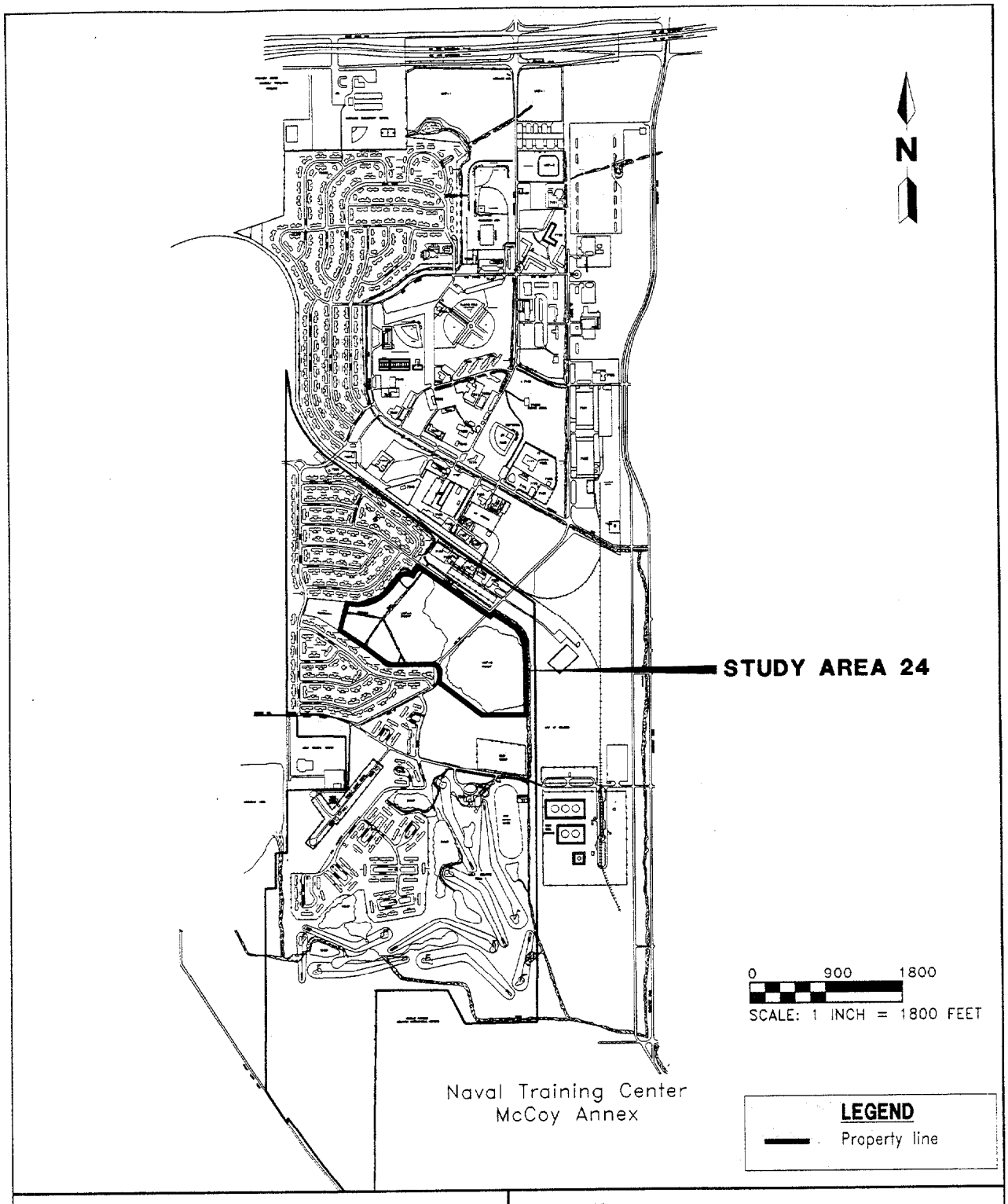


FIGURE 1
LOCATION OF STUDY AREA 24

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BASE REALIGNMENT AND CLOSURE ENVIRONMENTAL SITE SCREENING REPORT, STUDY AREA 24

NAVAL TRAINING CENTER ORLANDO, FLORIDA

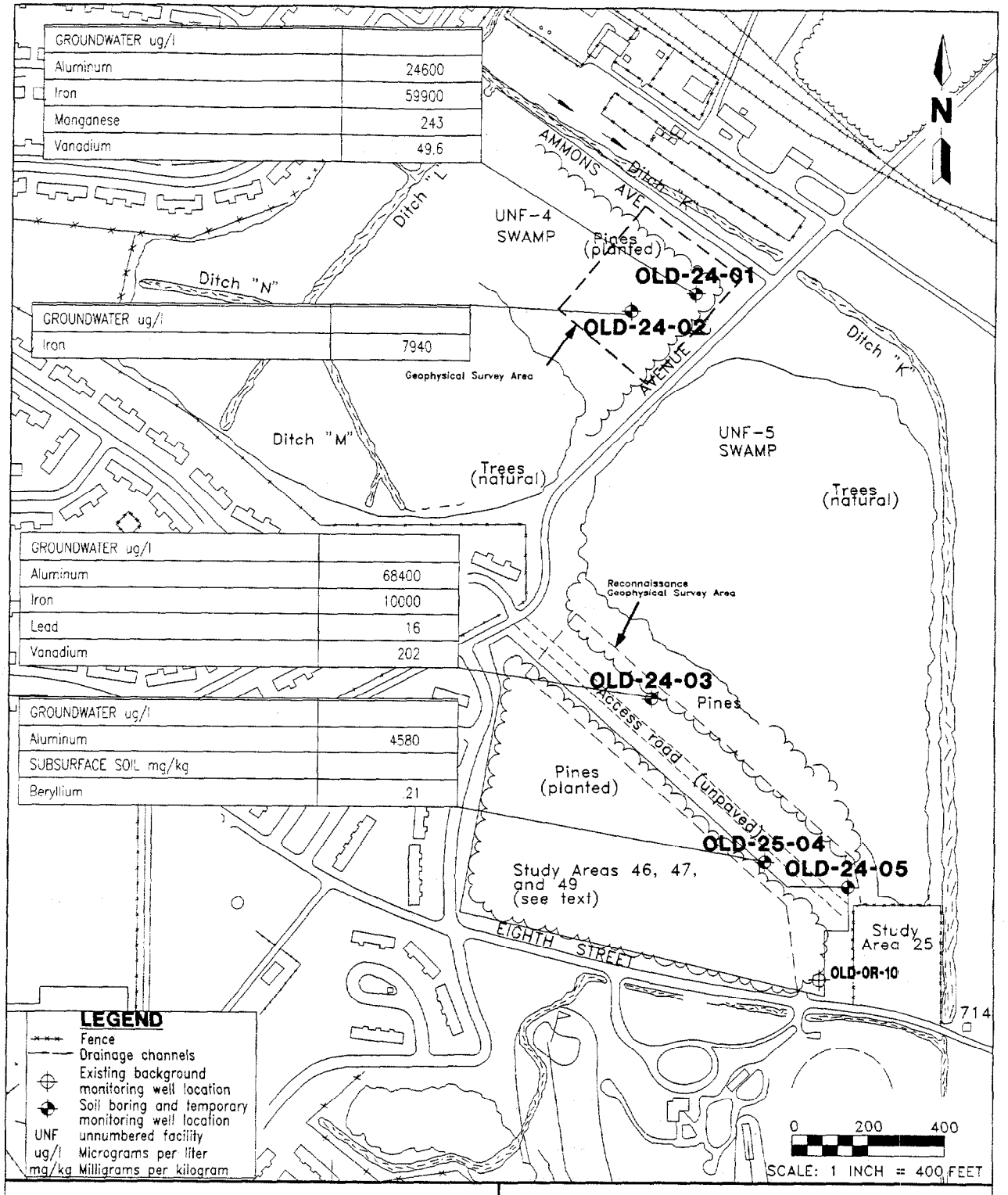

FIGURE 2
GEOPHYSICAL SURVEY AREAS, SOIL BORING AND MONITORING WELL LOCATIONS, MCCOY ANNEX, UNF-4, (NORTHWEST SWAMP) AND UNF-5 (SOUTHEAST SWAMP)

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BASE REALIGNMENT AND CLOSURE ENVIRONMENTAL SITE SCREENING REPORT, STUDY AREA 24

NAVAL TRAINING CENTER ORLANDO, FLORIDA

observed along the unpaved access road transecting UNF-5. Therefore, several hundred spot readings were made with both instruments. No indication of past landfilling activities was detected during the evaluation of geophysical data collected.

1.2.2 Soil Borings and Temporary Monitoring Well Installation Two hand-auger soil borings (24B001 and 24B002) were completed to depths of 10 feet below land surface (bls) and 6 feet bls, respectively, and were completed as temporary wells. Two subsurface soil samples were collected from depths of 5.5 to 6 feet bls (24B00101) and 4.5 to 5 feet bls (24B00201). A groundwater sample was collected from each temporary well (OLD-24-01 and OLD-24-02). Polyvinyl chloride (PVC) riser and well screens were removed from each temporary monitoring well location following sampling activities. The borings were backfilled with soil cuttings and bentonite chips. The soil and groundwater samples were submitted for full suite Contract Laboratory program (CLP) target compound list (TCL) and target analyte list (TAL) analyses, in accordance with U.S. Environmental Protection Agency (USEPA) Level IV data quality objectives (DQOs). No flame ionization detector (FID) deflections were noted during sample collection.

Three temporary groundwater monitoring wells (OLD-24-03, OLD-24-04, and OLD-24-05) were installed in hand-augered borings, located adjacent to the unpaved road transecting UNF-5 to evaluate the potential for past surface dumping along the roadway. One subsurface soil sample and one groundwater sample were collected at each temporary well location and submitted for full suite CLP TCL and TAL analyses, in accordance with USEPA Level IV DQOs. The subsurface soil samples were taken just above the water table at the three locations at depths of 4 to 5 feet bls (24B003 and 24B004) and 3 to 4 feet bls (24B005). PVC riser and well screens were removed from each temporary monitoring well location following sampling activities. The borings were backfilled with soil cuttings and bentonite chips. No FID deflections were noted during sample collection, except during the sampling of 24B00401, where an FID reading of 4 parts per million was noted.

Subsequent to the completion of the fieldwork at SA 24, a records search (document entitled "Technical Memorandum, U.S. Air Force Records Search, Naval Training Center, Orlando, Florida": prepared for Southern Division, Naval Facilities Engineering Command, Charleston, South Carolina, 1995) revealed that the area of plantation pines south and west of the reconnaissance geophysical survey area was an area of former disposal activities associated with the domestic wastewater treatment plant (designated SA 46), a skeet range (SA 47), and an area alleged to have been used for general waste disposal over a fairly large area (SA 49). The area of UNF-5 represented by these three overlapping study areas is indicated on Figure 2.

1.3 SA 24, RESULTS.

1.3.1 Geophysical Survey The details of the geophysical surveys conducted at SA 24 are presented in Appendix A. A summary of the findings is discussed below.

1.3.1.1 **UNF-4, Northwest Swamp** The geophysical survey in the Northwest Swamp (UNF-4) indicates the presence of a number of small geophysical anomalies, which probably reflect distortions in the magnetic/conductivity values produced by surface metallic debris. The data are consistent with the miscellaneous

household and construction debris observed in surficial rubble piles and did not indicate large-scale landfilling.

1.3.1.2 **UNF-5, Southeast Swamp** A limited reconnaissance geophysical survey was conducted at the Southeast Swamp on March 16, 1995, with magnetometer and TC instruments. Approximately 300 spot readings were taken with each instrument to determine whether or not the area (Figure 2) had been subject to landfilling activities at any time in the past. Except for evidence of occasional surface dumping, there was no indication at the surface or from the geophysical instruments of any landfilling.

1.3.2 Analytical Results, UNF-4 and -5, Northwest and Southeast Swamps The results of site screening investigations at SA 24 are discussed below. Analytical results from the subsurface soil and groundwater collected from SA 24 are presented as Positive Hits Tables in Appendix B. Appendix B-1 presents the Subsurface Soil Summary of Analytical Results, and Appendix B-2 presents the Groundwater Summary of Analytical Results. Exceedances of background or regulatory guidance concentrations are shaded on the Positive Hits Tables and displayed on Figure 2 in chem-boxes near their respective explorations.

A complete set of analytical results for these media is presented in Appendix C.

1.3.2.1 **Subsurface Soil** Detections in subsurface soil samples consist of one volatile organic compound, acetone, and TAL metals. Acetone detections appear to be a sampling and/or laboratory artifact. Inorganic detections exceeding background screening values include barium, beryllium, chromium, magnesium, manganese, potassium, vanadium and zinc. None of these metals, however, exceed their respective residential risk-based concentrations (RBC), with the exception of beryllium in subsurface soil sample 24B004 (0.21 milligrams per kilogram [mg/kg]), which slightly exceeds the residential RBC of 0.15 mg/kg. Leachibility-based soil cleanup goals values do not apply, as no organic compounds were present in groundwater above Florida Department of Environmental Protection (FDEP) groundwater guidance concentrations.

1.3.2.2 **Groundwater** Detections in groundwater include two semivolatile organic compounds (SVOCs) and TAL metals.

SVOCs. The SVOC detections, bis(2-Ethylhexyl)phthalate and di-n-octylphthalate, appear to be artifacts of the sampling and/or laboratory analytical process.

TAL Metals. The FDEP groundwater guidance concentration values for aluminum, iron, lead, manganese and vanadium were exceeded in one or more of the groundwater samples collected in SA 24. Aluminum, iron, and manganese are State of Florida secondary standards and will be discussed separately below. Lead was present in sample 24G00301 at a concentration of 16 micrograms per liter ($\mu g/\ell$), which slightly exceeded the State primary maximum contaminant level of 15 $\mu g/\ell$. Vanadium, a systemic toxicant, was detected in two samples (24G00101 and 24G00301) at concentrations of 49.6 $\mu g/\ell$ and 202 $\mu g/\ell$, versus an FDEP Groundwater Guidance Concentration of 49 $\mu g/\ell$ and a Region III tapwater RBC of 260 $\mu g/\ell$. Both groundwater samples were probably influenced by the presence of high suspended solids (500 and 366 milligrams per liter [mg/ℓ], respectively).

Secondary standards have been established for Class G-I and G-II aquifers by the State of Florida, largely along Federal guidelines, to assure that groundwater

meets at least minimum criteria for taste, odor, and color, and does not pose a health risk. Based on records reviews and interviews, there have been no known site activities that may have contributed to the observed exceedances of the secondary standards for aluminum, iron, and manganese in wells OLD-24-01, -02, -03, and -04.

Aluminum concentrations in wells OLD-24-01, -03, and -04 were 24,600 $\mu g/\ell$, 68,400 $\mu g/\ell$ and 4,580 $\mu g/\ell$, respectively, versus a background screening concentration of 4,067 $\mu g/\ell$. Iron concentrations in wells OLD-24-01, -02, and -03 were 59,900 $\mu g/\ell$, 7,940 $\mu g/\ell$, and 10,000 $\mu g/\ell$ versus a background screening concentration of 1,227 $\mu g/\ell$. The manganese concentration in well OLD-24-01 was 243 $\mu g/\ell$ versus the Florida secondary standard of 50 $\mu g/\ell$. Subsurface soil concentrations of these analytes did not exceed the background screening concentrations, except for manganese in one sample, 24B00501 (1.1 mg/kg versus the background screening value of 0.69 mg/kg). For comparison, the manganese RBC for residential soil is 1,840 mg/kg. The two groundwater samples with the highest concentrations of these analytes (24G00101 and 24G00301) are somewhat turbid to very turbid (19 and greater than 201 nephelometric turbidity units) with high total suspended solids (500 and 366 mg/ℓ) suggesting that suspended solids may have contributed to the observed secondary standard exceedances. Suspended solids are not unusual under these circumstances, as the wells in SA 24 were hand-augered temporary wells with no sand pack and thus could not be developed as is done with permanent wells.

Analytes exceeding Florida secondary standards should also be compared with RBCs for tapwater published by the USEPA, Region III. The tapwater guidance concentrations for aluminum, iron, and manganese are 37,000, 11,000, and 840 $\mu g/\ell$, respectively. Other groundwater parameters measured during sampling were within normal limits: pH varied from 5.48 to 5.81, temperature from 72 to 83 degrees Fahrenheit, and conductivity from 95 to 1,790 michromhos per centimeter. ABB-ES concludes that the iron, aluminum, and manganese exceeding secondary standards are due to suspended solids in the groundwater samples obtained from temporary wells, but are otherwise naturally occurring, are not related to past site activities, and do not pose a risk to human health or the environment.

1.4 SA 24, CONCLUSIONS AND RECOMMENDATIONS. ABB-ES concludes from the geophysical data and field observations that the study area has been subject to sporadic surface dumping, but is not the site of an old landfill. Furthermore, the environmental media that were sampled do not have concentrations of contaminants that would pose an environmental concern. Inorganic concentrations exceeding FDEP Groundwater Guidance Concentration were likely affected by the high total suspended solids present in the groundwater samples collected from the temporary wells.

Based upon the information available and the results of the site screening and analysis, ABB-ES concludes that SA 24 is transferrable and that the site should be reclassified from 7/Gray to 1/White.

The undersigned members of the Base Realignment and Closure cleanup team concur with the findings and recommendations of this investigation.

STUDY AREA 24

U.S. Environmental Protection Agency, Region IV	Date 6/19/97
Florida Department of Environmental Protection	Date 6-19-97
U.S. Department of the Navy	Date 6-19-97

REFERENCES

ABB Environmental Services, Inc. (ABB-ES), 1995a, Technical Memorandum, U.S. Air Force Records Search, NTC, Orlando, Orlando, Florida: prepared for Southern Division, Naval Facilities Engineering Command (SOUTHNAVFACENGCOM), Charleston, South Carolina, September.

ABB-ES, 1995b, Groups I through V Study Areas and Miscellaneous Additional Sites, NTC, Orlando, Orlando, Florida: prepared for SOUTHNAVFACENGCOM, Charleston, South Carolina, September.

APPENDIX A

GEOPHYSICAL SURVEYS

TECHNICAL MEMORANDUM
GEOPHYSICAL SURVEYS
STUDY AREA 24

NAVAL TRAINING CENTER
ORLANDO, FLORIDA

The following is a summary of the significant findings of the geophysical surveys that took place between March 3 and April 14, 1995, at NTC, Orlando. Geophysical surveys took place at Study Area (SA) 24 (Figure A-1). The geophysical surveys were conducted to evaluate potential subsurface debris disposal, and to aid in clearing utilities for the subsurface investigations. The techniques used were magnetometry, terrain conductivity (TC), and ground-penetrating radar (GPR). The magnetic method is a versatile geophysical technique used for evaluating shallow geologic structures and for locating buried manmade objects and buried debris by mapping local distortions in the earth's magnetic field produced by buried magnetic objects (steel and other magnetic materials). Vertical gradient measurements of the earth's magnetic field are often taken during environmental magnetic surveys because they are more sensitive to the presence of near-surface metal objects than total field values alone.

TC surveys, also referred to as EMI (electro-magnetic induction) surveys, have traditionally been used in mineral exploration for tracing conductive ore bodies (i.e., massive sulfides). More recently, conductivity surveys have been used in environmental studies for mapping buried debris and former structures, and for tracing conductive contaminant plumes in groundwater. TC instruments record two parameters: the quadrature phase and the in-phase components of an induced magnetic field. The quadrature-phase component is a measure of the ground conductivity value expressed in millimhos per meter. The in-phase component is significantly more sensitive to metallic objects and is useful for looking for buried tanks and drums and other manmade objects.

The GPR technique uses high frequency radio waves to determine the presence of subsurface objects and structures. The radio wave energy is reflected from surfaces where there is a contrast in the electrical properties of subsurface materials, such as naturally occurring geologic horizons or manmade objects (e.g., buried utilities, tanks, drums). Typical applications for GPR include mapping buried utilities, and delineating the boundaries of buried hazardous waste materials and abandoned landfills.

Following is a discussion of the results of this investigation.

SA 24 - NORTHWEST SWAMP (UNF-4) AND SOUTHEAST SWAMP (UNF-5)

Northwest Swamp (UNF-4). A geophysical survey was completed in the Northwest Swamp (UNF-4). The purpose for conducting geophysical surveys was to delineate the extent of landfilling of demolition debris. The survey area is 400 feet long by 400 feet wide, or approximately 3.7 acres. A geophysical survey grid with an arbitrary origin and oriented approximately N40°E was established. Subsequently, a magnetometer and TC survey were completed concurrently in the area shown on Figure A-1. A total of 861 data points were acquired on a 10-foot by 20-foot measurement grid with each instrument. Contour data are presented as Figures A-2 through A-4. Figure A-2 presents the vertical magnetic gradient contours, and

Figures A-3 and A-4 present the quadrature (conductivity) and inphase (equivalent to a metal detector) contours of the magnetic field induced by the transmitter of the TC instrument. The data indicate the presence of a number of small geophysical anomalies, which probably reflect distortions in the magnetic/conductivity values produced by surface metallic debris. The annotated field map (Figure A-5), constructed from notes made by the field party at the time of the survey, notes many items observable at the ground surface, which would produce magnetic/conductivity distortions such as are present on the contour maps.

GPR traverses were planned but not completed across the study area because of rough, irregular terrain, preventing direct contact of the GPR antenna with the ground surface.

We conclude from the data that the study area has been subject to sporadic surface dumping (disposed white goods, demolition debris, pipe, a car battery, and power poles). However, we do not conclude that the area is the site of an old landfill.

Southeast Swamp (UNF-5). A limited reconnaissance geophysical survey was conducted at the Southeast Swamp on March 16, 1995, with magnetometer and TC instruments. Approximately 300 "spot" readings were taken with each instrument to determine whether or not the area (Figure A-1) had been subject to landfilling activities at any time in the past. Except for evidence of occasional surface dumping, there was no indication at the surface or from the geophysical instruments of any landfilling. We conclude that the Southeast Swamp is not a former landfill.

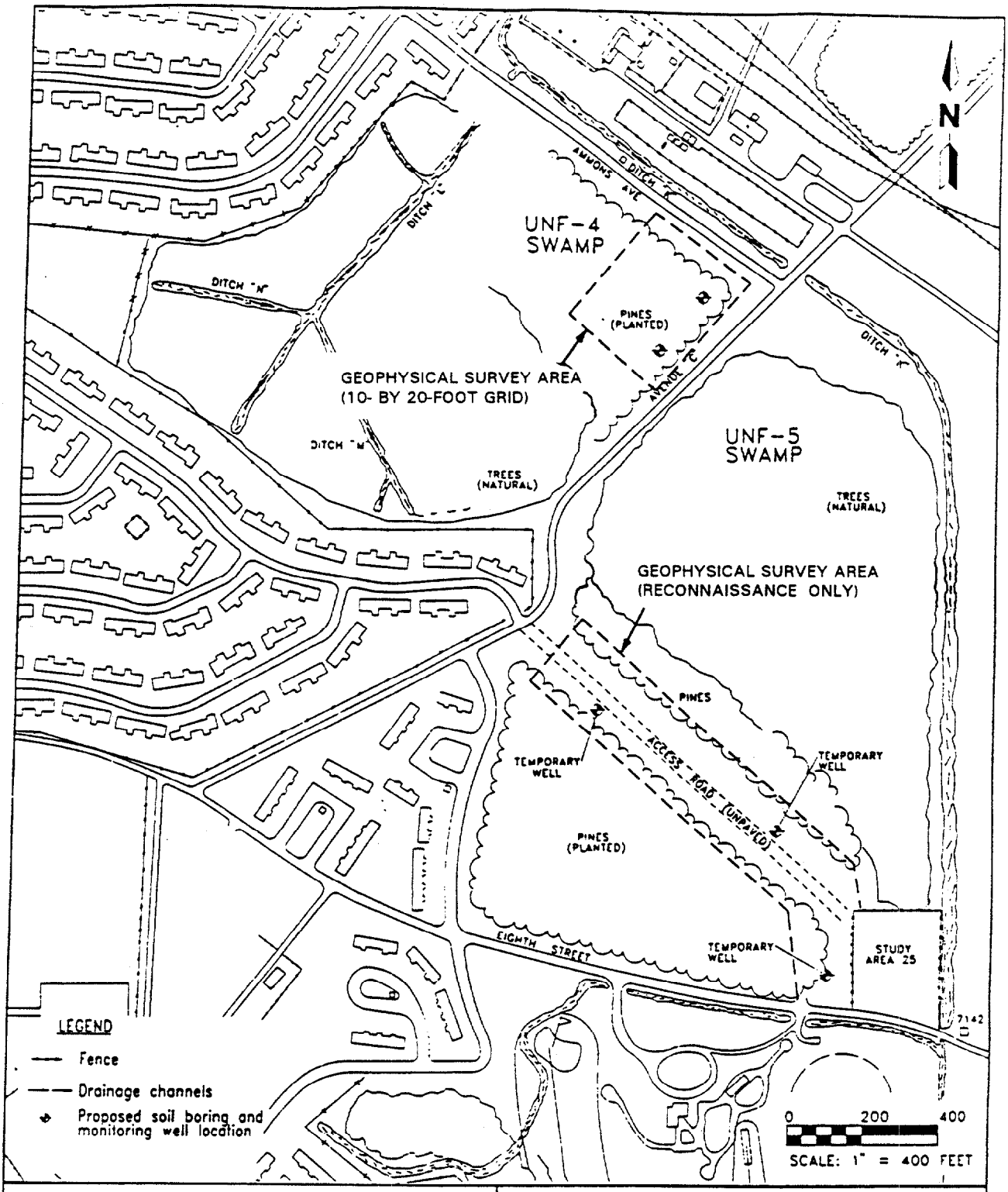
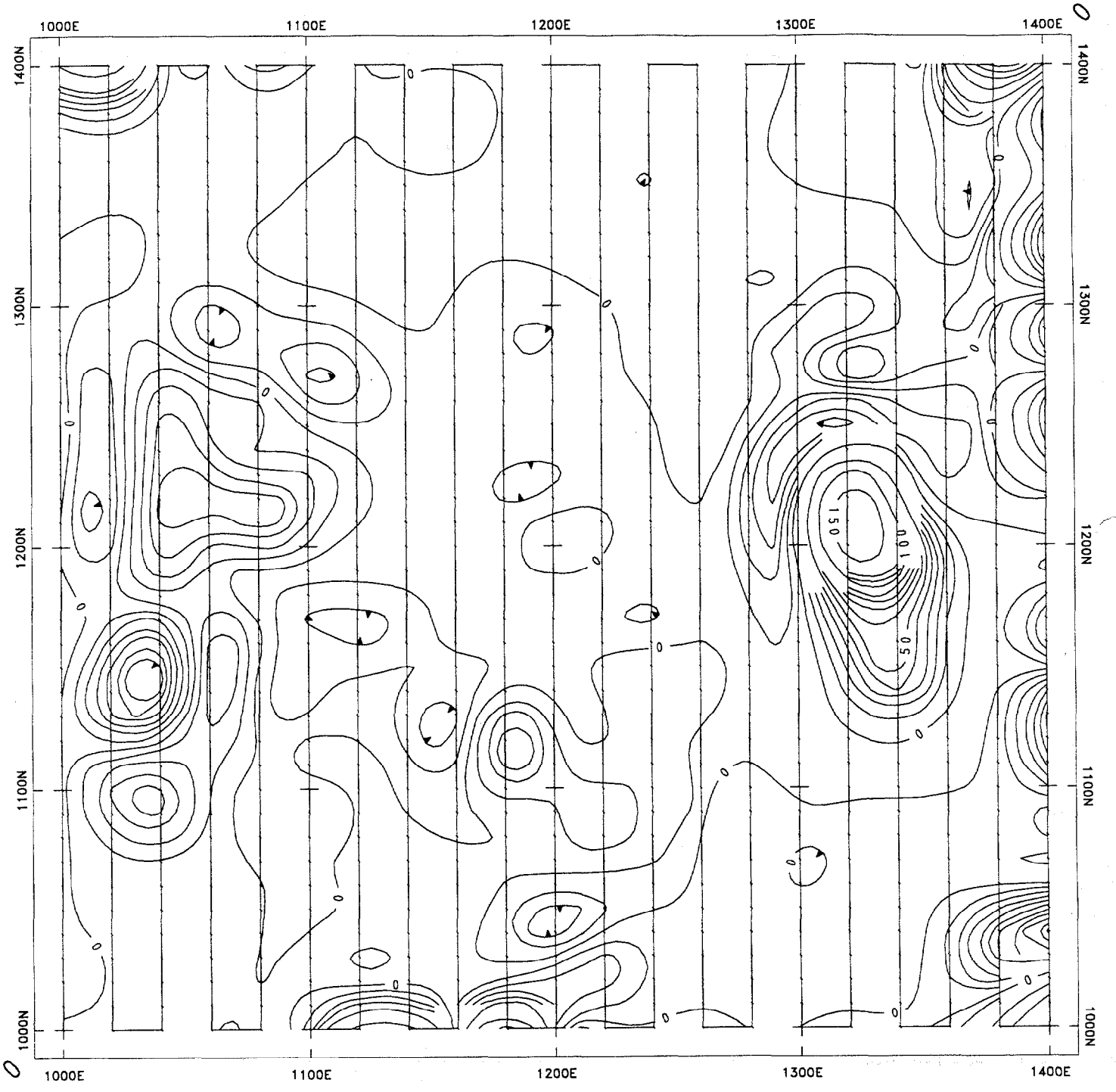


FIGURE A-1
GEOPHYSICAL SURVEY AREAS
MCCOY ANNEX UNF-4 (NW SWAMP)
AND UNF-5 (SE SWAMP)
STUDY AREA 24

BRAC ENVIRONMENTAL SITE SCREENING REPORT

NAVAL TRAINING CENTER
ORLANDO, FLORIDA



NOTE: CONTOUR INTERVAL = 10 GAMMAS.

Scale 1:720

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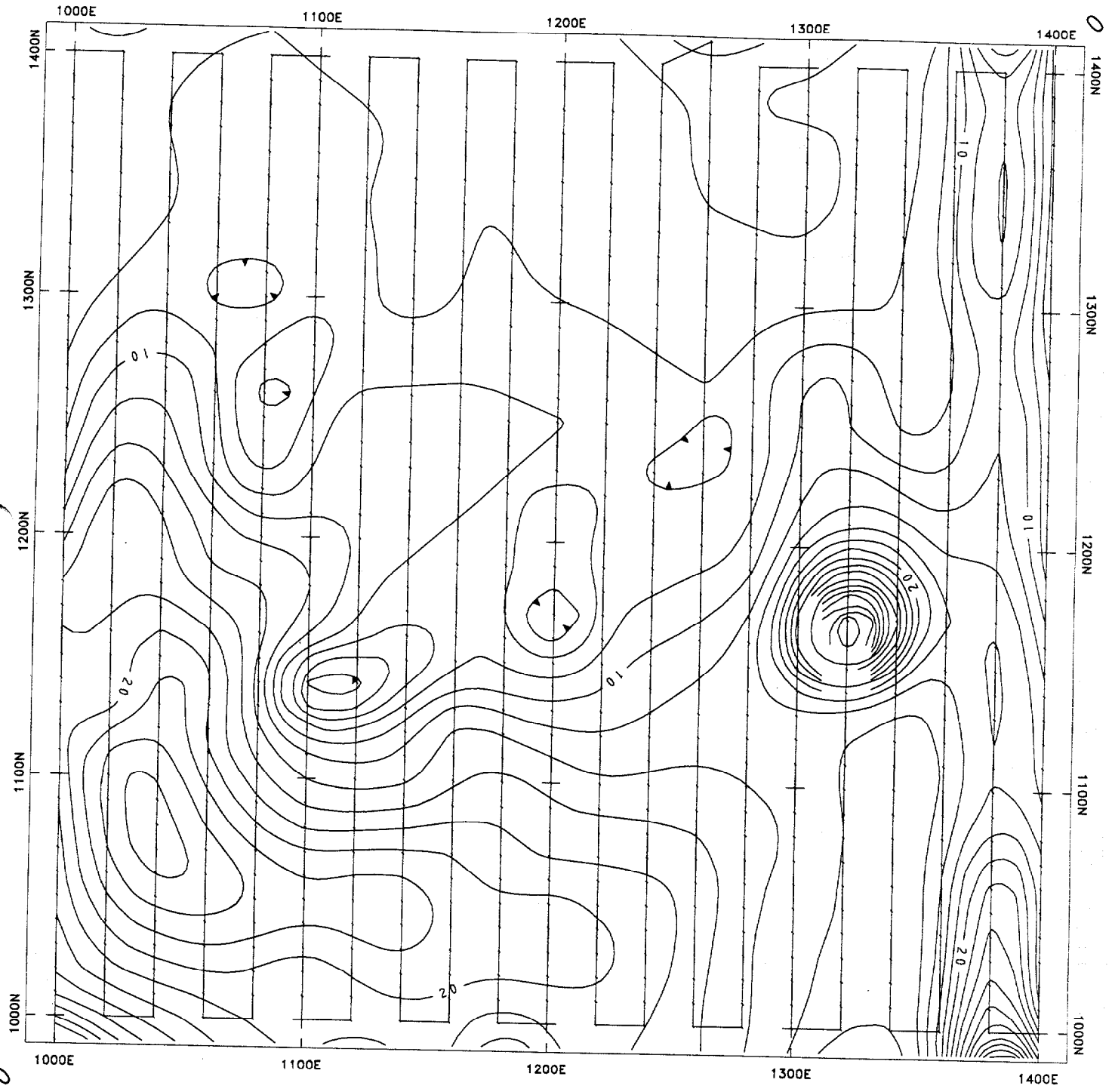
(feet)

SOUTHERN DIVISION
VERTICAL GRADIENT CONTOURS STUDY AREA 24
ABB ENVIRONMENTAL SERVICES, INC.
FIGURE A-2



NOTE: CONTOUR INTERVAL = 2 MMHOS/M

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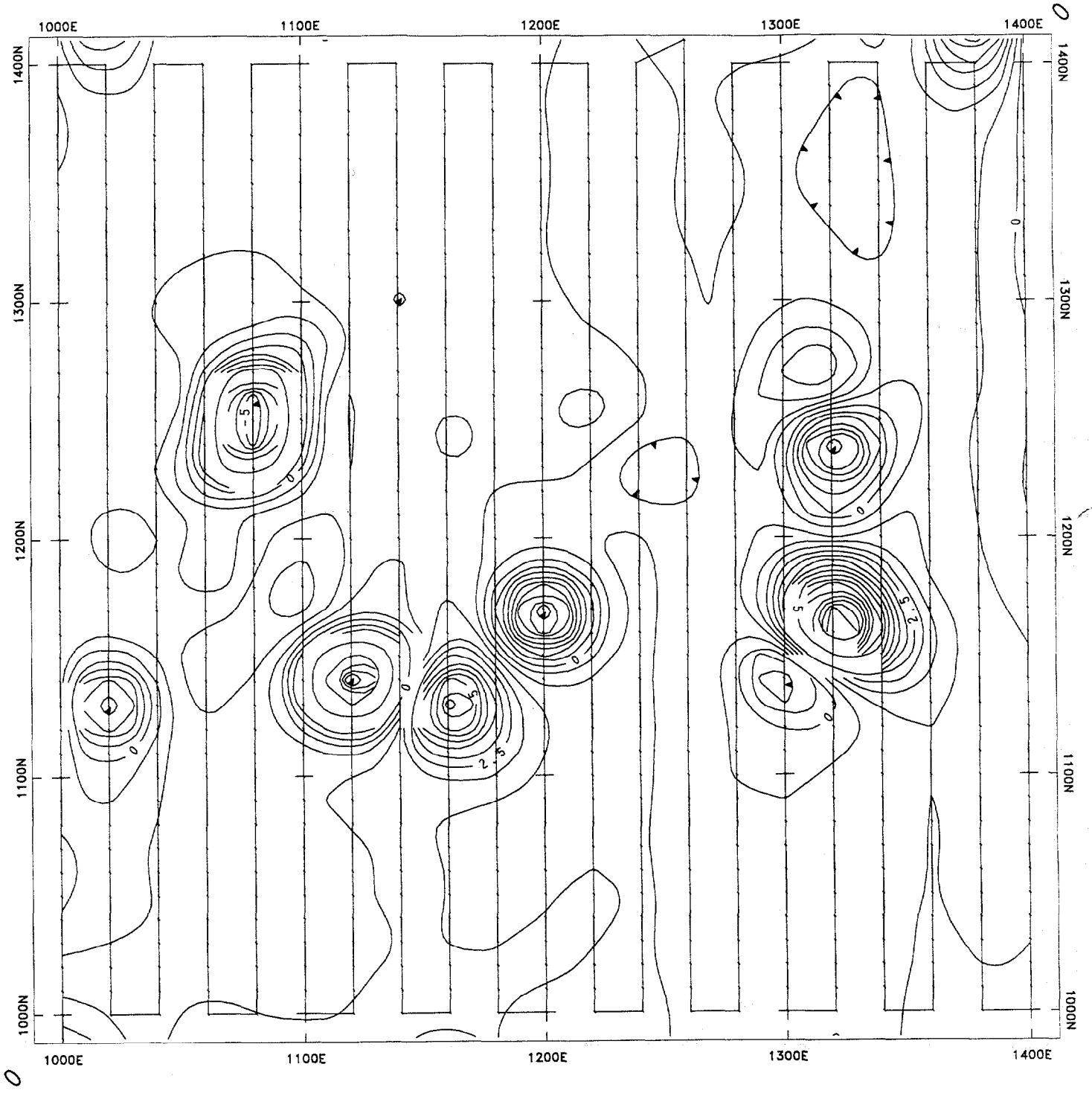
(feet)

SOUTHERN DIVISION
QUADRATURE CONTOURS STUDY AREA 24
ABB ENVIRONMENTAL SERVICES, INC.
FIGURE A-3



NOTE: CONTOUR INTERVAL = 0.5/2.5

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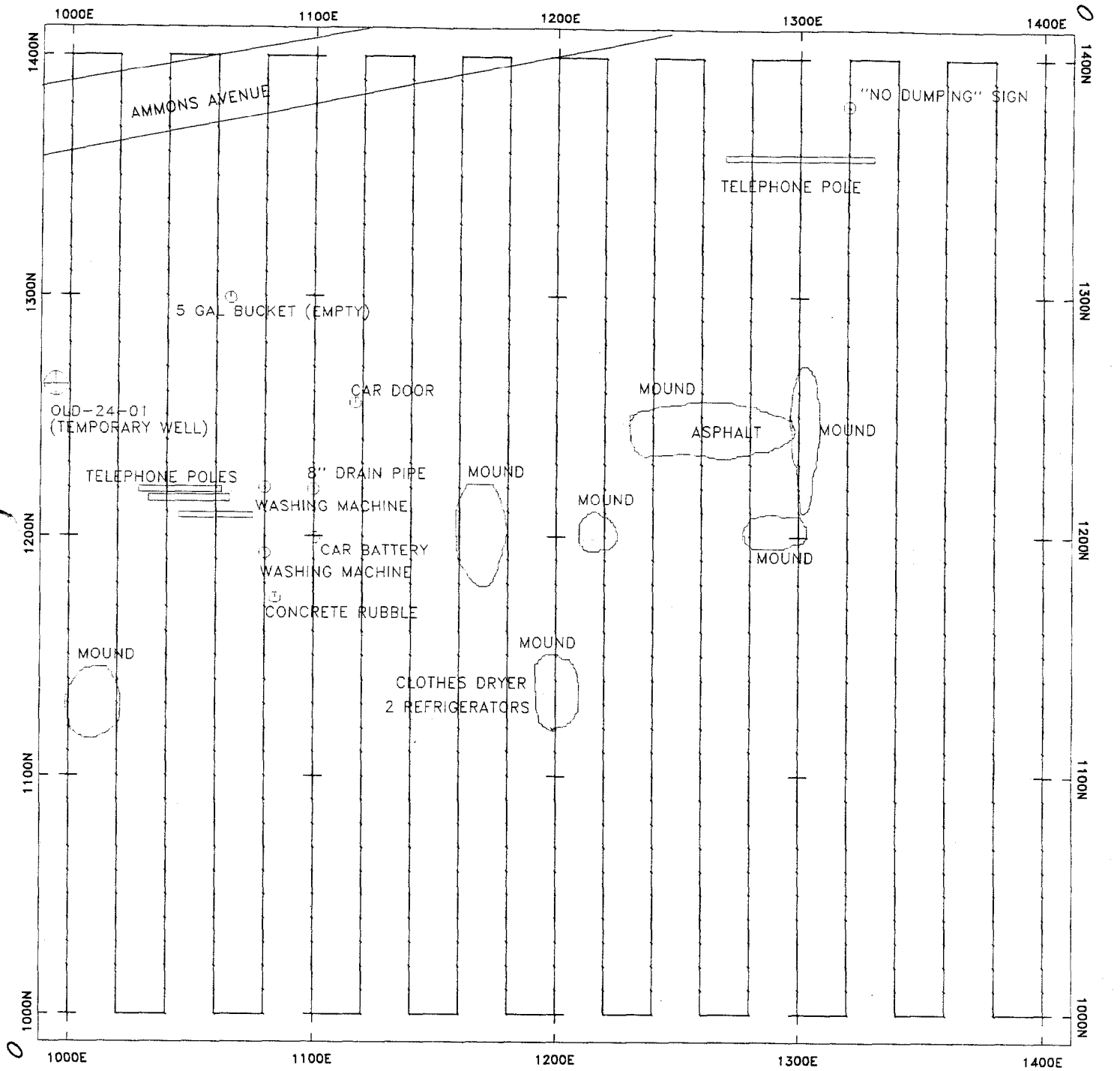
(feet)

SOUTHERN DIVISION
INPHASE CONTOURS STUDY AREA 24
ABB ENVIRONMENTAL SERVICES, INC.
FIGURE A-4



Scale 1:720

25 0 25 50 75

(feet)

SOUTHERN DIVISION
ANNOTATED FIELD MAP POTENTIAL SOURCES OF GEOPHYSICAL ANOMALIES STUDY AREA 24
ABB ENVIRONMENTAL SERVICES, INC.
FIGURE A-5

APPENDIX B

SUMMARY OF POSITIVE DETECTIONS IN SOIL AND GROUNDWATER ANALYTICAL RESULTS

B-1: Summary of Positive Detections in Subsurface Soil Analytical Results
B-2: Summary of Positive Detections in Groundwater Analytical Results

APPENDIX B-1

SUMMARY OF POSITIVE DETECTIONS IN SUBSURFACE SOIL ANALYTICAL RESULTS

Table B-1. Summary of Positive Detections in Subsurface Soil Analytical Results, Study Area 24

BRAC Environmental Site Screening Report
Naval Training Center, Orlando
Orlando, FL

Identifier	Background [1]	SCG [2]	RBC [3] for Residential Soil	RBC [3] for Industrial Soil	24B00101	24B00201	24B00301	24B00401	24B00501
Sampling Date					6/1/95	6/1/95	5/4/95	5/4/95	5/4/95
Feet bls					5.5	4.5	4	4	3
Volatile Organics, ug/kg									
Acetone	--	ND	7,800,000 n	200,000,000 n	10 J	9 J	30		13 J
Inorganics, mg/kg									
Aluminum	11,130	ND	78,000 n	1,000,000 n	4,350 J	2,580 J	1,610 J	9,290 J	8,830 J
Arsenic	2.0	ND	0.43 c/23 n	3.8 c/610 n	0.5 B	0.52 B	0.81 B	1.4 J	1.1 B
Barium	11.3	ND	5,500 n	140,000 n	19.5 B	7.2 B	4.9 J	10.9 J	6.5 J
Beryllium	0.18	ND	0.15 c	1.3 c			0.09 J	0.21 B	0.12 B
Calcium	321	ND	1,000,000	1,000,000	239 B	329 B	22.3 J	15.4 J	7.1 J
Chromium	11.3	ND	390 n	10,000 n	3.8	1.6 B		11.8	9.2
Copper	2.8	ND	3,100 n	82,000 n				0.37 B	
Iron	829	ND	23,000 n	610,000 n	260 J	140 J	184 J	369 J	552 J
Lead	7.0	ND	400	400	5 J	2.5 J	4.4 J	6.1 J	6.5 J
Magnesium	38.9	ND	460,468	460,468		19 B		29.6 B	77.4 B
Manganese	0.69	ND	1,800 n	47,000 n	0.9 B	0.35 B	0.56 B	0.57 B	1.1 B
Mercury	0.12	ND	23 n	610 n				0.08	0.05
Nickel	11.3	ND	1,600 n	41,000 n	3.9 B			5.4 B	3.8 B
Potassium	--	ND	297,016	297,016	105 B		136 B		
Selenium	1.4	ND	390 n	10,000 n				1.2	
Vanadium	5.9	ND	550 n	14,000 n	6 B	1.8 B	2.4 B	5.8 B	7 B
Zinc	0.66	ND	23,000 n	610,000 n	0.75 B		0.31 B	0.37 B	0.46 B

Appendix B-1. Summary of Positive Detections in Subsurface Soil Analytical Results, Study Area 24

BRAC Environmental Site Screening Report
Naval Training Center, Orlando
Orlando, FL

NOTES:

[1] The background screening value is twice the average of detected concentrations for inorganic analytes. For organics, values are the mean of detected concentration, presented for comparison purposes only.

[2] SCG = Soil Cleanup Goals for Florida (Florida Department of Environmental Protection memorandum, September 29, 1995). Leachability-based SCG values do not apply, as no organic compounds were present in groundwater above Florida groundwater guidance concentrations.

[3] RBC = Risk-Based Concentration Table, USEPA Region III, October, 1995, R.L. Smith. RBC for chromium is based on chromium VI. RBC for lead is not available, value is Interim Guidance on Establishing Soil Lead Cleanup Levels at Superfund Sites (OSWER directive 9355-4-12). For essential nutrients (calcium, magnesium, potassium, and sodium) screening values were derived based on recommended daily allowances (RDAs). RBC for Aroclor-1260 is not available, value is RBC for PCBs. RBC for benzo(g,h,i)perylene and phenanthrene are not available, value is based on pyrene. RBC for thallium is based on thallium chloride. RBC for alpha and gamma-chlordane are based on chlordane.

n = noncarcinogenic pathway
c = carcinogenic pathway
ND = Not determined.
bls = below land surface
J = Reported concentration is an estimated quantity.
ug/kg = micrograms per kilogram.
PCB = polychlorinated biphenyl.
mg/kg = milligrams per kilogram.
OSWER = Office of Solid Waste and Emergency Response.
USEPA = U.S. Environmental Protection Agency.
B = Reported concentration is between the instrument detection limit (IDL) and Contract Required Detection Limit (CRDL).
-- = Analyte/compound not detected at reporting limit.

Bold/shaded values indicate exceedance of regulatory guidance and background.
All inorganics results expressed in milligrams per kilogram (mg/kg) soil dry weight; organics in micrograms per kilogram (mg/kg) soil dry weight.
Blank space indicates analyte/compound was not detected at the reporting limit.

APPENDIX B-2

SUMMARY OF POSITIVE DETECTIONS IN GROUNDWATER ANALYTICAL RESULTS

Table B-2. Summary of Positive Detections in Groundwater Analytical Results, Study Area 24

BRAC Environmental Site Screening Report
Naval Training Center, Orlando
Orlando, FL

Well ID					OLD-24-01		OLD-24-02		OLD-24-03		OLD-24-04		OLD-24-05	
Identifier	Background [1]	FDEPG	FEDMCL	RBC [2] for Tap Water	24G00101		24G00201		24G00301		24G00401		24G00501	
Sampling Date					6/1/95		6/1/95		5/18/95		5/4/95		5/4/95	
Semivolatile Organics, ug/L														
bis(2-Ethylhexyl)phthalate	1	6 [6]	ND	4.8 c	2						1			
Di-n-octylphthalate	--	140 [4]	ND	730 n	7	J								
Inorganics, ug/L														
Aluminum	4,067	200 [3]	ND	37,000 n	**24,600**		936		**68400**		**4,580**		1,620	
Arsenic	5	50 [5]	50	0.045 c/11 n	2.4	J	4.3	J	4.1	B			2.7	B
Barium	31.4	2,000 [5]	2,000	2,600 n	202	J	42.7	J	145	B	21.5	B	10	B
Beryllium	--	4 [5]	4	0.016 c	0.95	J	0.14	J	3.6	B	0.15	B	0.14	B
Calcium	36,830	ND	ND	1,000,000	62,300		397,000		7920		832	B	13,900	
Chromium	7.8	100 [5]	100	180 n	23.6				91.1					
Cobalt	--	ND	ND	2,200 n	15.8	J			4.7	B				
Iron	1,227	300 [3]	ND	11000 n	**59,900**		**7,940**		**10000**		272		809	
Lead	4.0	15 [5]	15	15	2.4	B			**16**		1.9	B		
Magnesium	4,560	ND	ND	118,807	32,800		12,500		4940	B	738	B	2,290	B
Manganese	17	50 [3]	ND	840 n	**243**		42.3		12.8	B				
Mercury	0.12	2	2	11 n					0.35					
Nickel	--	100 [5]	100	730 n					36	B				
Potassium	5,400	ND	ND	297,016	2,950	J	5,950		1010	B	625	B	744	B
Selenium	9.7	50 [5]	50	180 n					2.5	J				
Sodium	18,222	160,000 [5]	ND	396,022	16,800		14,200		4230	B	2,480	B	9,430	
Vanadium	20.6	49 [4]	ND	260 n	**49.6**	B	4.2	B	**202**		22.9	B		
Zinc	4	5,000 [3]	ND	11000 n	13.4	B	4.4	B						
General chemistry, mg/L														
Total Suspended Solids	ND	ND	ND	ND	500		3		366		48		16	

Appendix B-2. Summary of Positive Detections in Groundwater Analytical Results, Study Area 24

BRAC Environmental Site Screening Report
Naval Training Center, Orlando
Orlando, FL

NOTES:

[1] Groundwater background screening value is twice the average of detected concentrations for inorganic analytes. For organic compounds, values are the mean of detected concentration, presented for comparison purposes only.

[2] RBC = Risk-Based Concentration Table, USEPA Region III, May 1996, R.L. Smith. RBC for chromium is based on chromium VI. RBC for lead is not available, value is treatment technology action limit for lead in drinking water distribution system identified in Drinking Water Standards and Health Advisories (USEPA, 1995). For essential nutrients (calcium, magnesium, potassium, and sodium) screening values were derived based on recommended daily allowances (RDAs).

[3] Secondary Standard.

[4] Systemic Toxicant

[5] Primary Standard

[6] Organoleptic

[7] Action level

n = noncarcinogenic pathway

c = carcinogenic pathway

ND = Not determined.

ID = identifier

USEPA = U.S. Environmental Protection Agency.

FDEPG = Florida Department of Environmental Protection, Groundwater Guidance Concentrations, June 1994.

FEDMCL= Federal Maximum Contaminant Levels, Primary Drinking Water Regulations and Health Advisories, October 1996.

B = Reported concentration is between the instrument detection limit (IDL) and the contract required detection limit (CRDL).

J = Reported concentration is an estimated quantity.

ug/l = micrograms per liter.

mg/l = milligrams per liter.

Bold/shaded numbers indicate exceedance of groundwater guidance and background.

Blank space indicates analyte/compound was not detected at the reporting limit.

APPENDIX C

SUMMARY OF ANALYTICAL RESULTS

C-1 Summary of Subsurface Soil Analytical Results
C-2 Summary of Groundwater Analytical Results

APPENDIX C-1

SUMMARY OF SUBSURFACE SOIL ANALYTICAL RESULTS

Table C-1. Summary of Subsurface Soil Analytical Results
Study Area 24

BRAC Environmental Site Screening Report
Naval Training Center, Orlando
Orlando, FL

Sample ID	24B00101		24B00201		24B00301		24B00401		24B00501	
Lab ID	G7717003		G7717004		G7493001		G7493002		G7493003	
Sampling Date	1-Jun-95		1-Jun-95		4-May-95		4-May-95		4-May-95	
Volatile organics, ug/kg										
1,1,1-Trichloroethane	12	U	12	U	12	U	12	U	12	U
1,1,2,2-Tetrachloroethane	12	U	12	U	12	U	12	U	12	U
1,1,2-Trichloroethane	12	U	12	U	12	U	12	U	12	U
1,1-Dichloroethane	12	U	12	U	12	U	12	U	12	U
1,1-Dichloroethene	12	U	12	U	12	U	12	U	12	U
1,2-Dichloroethane	12	U	12	U	12	U	12	U	12	U
1,2-Dichloroethene (total)	12	U	12	U	12	U	12	U	12	U
1,2-Dichloropropane	12	U	12	U	12	U	12	U	12	U
2-Butanone	12	U	12	U	12	U	12	U	12	U
2-Hexanone	12	U	12	U	12	U	12	U	12	U
4-Methyl-2-pentanone	12	U	12	U	12	U	12	U	12	U
Acetone	10	J	9	J	30		12	U	13	J
Benzene	12	U	12	U	12	U	12	U	12	U
Bromodichloromethane	12	U	12	U	12	U	12	U	12	U
Bromoform	12	U	12	U	12	U	12	U	12	U
Bromomethane	12	U	12	U	12	U	12	U	12	U
Carbon disulfide	12	U	12	U	12	U	12	U	12	U
Carbon tetrachloride	12	U	12	U	12	U	12	U	12	U
Chlorobenzene	12	U	12	U	12	U	12	U	12	U
Chloroethane	12	U	12	U	12	U	12	U	12	U
Chloroform	12	U	12	U	12	U	12	U	12	U
Chloromethane	12	U	12	U	12	U	12	U	12	U
cis-1,3-Dichloropropene	12	U	12	U	12	U	12	U	12	U
Dibromochloromethane	12	U	12	U	12	U	12	U	12	U
Ethylbenzene	12	U	12	U	12	U	12	U	12	U
Methylene chloride	12	U	12	U	12	U	12	U	12	U
Styrene	12	U	12	U	12	U	12	U	12	U
Tetrachloroethene	12	U	12	U	12	U	12	U	12	U
Toluene	12	U	12	U	12	U	12	U	12	U
trans-1,3-Dichloropropene	12	U	12	U	12	U	12	U	12	U
Trichloroethene	12	U	12	U	12	U	12	U	12	U
Vinyl chloride	12	U	12	U	12	U	12	U	12	U
Xylene (total)	12	U	12	U	12	U	12	U	12	U
Semivolatile organics, ug/kg										
1,2,4-Trichlorobenzene	400	U	400	U	400	U	400	U	390	U
1,2-Dichlorobenzene	400	U	400	U	400	U	400	U	390	U
1,3-Dichlorobenzene	400	U	400	U	400	U	400	U	390	U
1,4-Dichlorobenzene	400	U	400	U	400	U	400	U	390	U
2,2'-oxybis(1-Chloropropane)	400	U	400	U	400	U	400	U	390	U
2,4,5-Trichlorophenol	990	U	1000	U	990	U	1000	U	970	U
2,4,6-Trichlorophenol	400	U	400	U	400	U	400	U	390	U
2,4-Dichlorophenol	400	U	400	U	400	U	400	U	390	U
2,4-Dimethylphenol	400	U	400	U	400	U	400	U	390	U
2,4-Dinitrophenol	990	U	1000	U	990	U	1000	U	970	U
2,4-Dinitrotoluene	400	U	400	U	400	U	400	U	390	U
2,6-Dinitrotoluene	400	U	400	U	400	U	400	U	390	U
2-Chloronaphthalene	400	U	400	U	400	U	400	U	390	U
2-Chlorophenol	400	U	400	U	400	U	400	U	390	U
2-Methylnaphthalene	400	U	400	U	400	U	400	U	390	U
2-Methylphenol	400	U	400	U	400	U	400	U	390	U
2-Nitroaniline	990	U	1000	U	990	U	1000	U	970	U
2-Nitrophenol	400	U	400	U	400	U	400	U	390	U

Table C-1. Summary of Subsurface Soil Analytical Results
Study Area 24

BRAC Environmental Site Screening Report
Naval Training Center, Orlando
Orlando, FL

Sample ID	24B00101		24B00201		24B00301		24B00401		24B00501	
Lab ID	G7717003		G7717004		G7493001		G7493002		G7493003	
Sampling Date	1-Jun-95		1-Jun-95		4-May-95		4-May-95		4-May-95	
3,3'-Dichlorobenzidine	400	U	400	U	400	U	400	U	390	U
3-Nitroaniline	990	U	1000	U	990	U	1000	U	970	U
4,6-Dinitro-2-methylphenol	990	U	1000	U	990	U	1000	U	970	U
4-Bromophenyl-phenylether	400	U	400	U	400	U	400	U	390	U
4-Chloro-3-methylphenol	400	U	400	U	400	U	400	U	390	U
4-Chloroaniline	400	U	400	U	400	U	400	U	390	U
4-Chlorophenyl-phenylether	400	U	400	U	400	U	400	U	390	U
4-Methylphenol	400	U	400	U	400	U	400	U	390	U
4-Nitroaniline	990	U	1000	U	990	U	1000	U	970	U
4-Nitrophenol	990	U	1000	U	990	U	1000	U	970	U
Acenaphthene	400	U	400	U	400	U	400	U	390	U
Acenaphthylene	400	U	400	U	400	U	400	U	390	U
Anthracene	400	U	400	U	400	U	400	U	390	U
Benzo(a)anthracene	400	U	400	U	400	U	400	U	390	U
Benzo(a)pyrene	400	U	400	U	400	U	400	U	390	U
Benzo(b)fluoranthene	400	U	400	U	400	U	400	U	390	U
Benzo(g,h,i)perylene	400	U	400	U	400	U	400	U	390	U
Benzo(k)fluoranthene	400	U	400	U	400	U	400	U	390	U
bis(2-Chloroethoxy)methane	400	U	400	U	400	U	400	U	390	U
bis(2-Chloroethyl)ether	400	U	400	U	400	U	400	U	390	U
bis(2-Ethylhexyl)phthalate	400	U	400	U	400	U	400	U	390	U
Butylbenzylphthalate	400	U	400	U	400	U	400	U	390	U
Carbazole	400	U	400	U	400	U	400	U	390	U
Chrysene	400	U	400	U	400	U	400	U	390	U
Di-n-butylphthalate	400	U	400	U	400	U	400	U	390	U
Di-n-octylphthalate	400	U	400	U	400	U	400	U	390	U
Dibenz(a,h)anthracene	400	U	400	U	400	U	400	U	390	U
Dibenzofuran	400	U	400	U	400	U	400	U	390	U
Diethylphthalate	400	U	400	U	400	U	400	U	390	U
Dimethylphthalate	400	U	400	U	400	U	400	U	390	U
Fluoranthene	400	U	400	U	400	U	400	U	390	U
Fluorene	400	U	400	U	400	U	400	U	390	U
Hexachlorobenzene	400	U	400	U	400	U	400	U	390	U
Hexachlorobutadiene	400	U	400	U	400	U	400	U	390	U
Hexachlorocyclopentadiene	400	U	400	U	400	U	400	U	390	U
Hexachloroethane	400	U	400	U	400	U	400	U	390	U
Indeno(1,2,3-cd)pyrene	400	U	400	U	400	U	400	U	390	U
Isophorone	400	U	400	U	400	U	400	U	390	U
N-Nitroso-di-n-propylamine	400	U	400	U	400	U	400	U	390	U
N-Nitrosodiphenylamine (1)	400	U	400	U	400	U	400	U	390	U
Naphthalene	400	U	400	U	400	U	400	U	390	U
Nitrobenzene	400	U	400	U	400	U	400	U	390	U
Pentachlorophenol	990	U	1000	U	990	U	1000	U	970	U
Phenanthrene	400	U	400	U	400	U	400	U	390	U
Phenol	400	U	400	U	400	U	400	U	390	U
Pyrene	400	U	400	U	400	U	400	U	390	U
Pesticides/PCBs, ug/kg										
4,4'-DDD	3.9	U	4.2	U	3.9	U	4	U	3.8	U
4,4'-DDE	3.9	U	4.2	U	3.9	U	4	U	3.8	U
4,4'-DDT	3.9	U	4.2	U	3.9	U	4	U	3.8	U
Aldrin	2	U	2.2	U	2	U	2.1	U	2	U
alpha-BHC	2	U	2.2	U	2	UJ	2.1	UJ	2	UJ
alpha-Chlordane	2	U	2.2	U	2	U	2.1	U	2	U

Table C-1. Summary of Subsurface Soil Analytical Results
Study Area 24

BRAC Environmental Site Screening Report
Naval Training Center, Orlando
Orlando, FL

Sample ID	24B00101	24B00201	24B00301	24B00401	24B00501
Lab ID	G7717003	G7717004	G7493001	G7493002	G7493003
Sampling Date	1-Jun-95	1-Jun-95	4-May-95	4-May-95	4-May-95
Aroclor-1016	39 U	42 U	39 U	40 U	38 U
Aroclor-1221	80 U	85 U	80 U	82 U	78 U
Aroclor-1232	39 U	42 U	39 U	40 U	38 U
Aroclor-1242	39 U	42 U	39 U	40 U	38 U
Aroclor-1248	39 U	42 U	39 U	40 U	38 U
Aroclor-1254	39 U	42 U	39 U	40 U	38 U
Aroclor-1260	39 U	42 U	39 U	40 U	38 U
beta-BHC	2 U	2.2 U	2 U	2.1 U	2 U
delta-BHC	2 U	2.2 U	2 U	2.1 U	2 U
Dieldrin	3.9 U	4.2 U	3.9 UJ	4 UJ	3.8 UJ
Endosulfan I	2 U	2.2 U	2 U	2.1 U	2 U
Endosulfan II	3.9 U	4.2 U	3.9 U	4 U	3.8 U
Endosulfan sulfate	3.9 U	4.2 U	3.9 U	4 U	3.8 U
Endrin	3.9 U	4.2 U	3.9 U	4 U	3.8 U
Endrin aldehyde	3.9 U	4.2 U	3.9 U	4 U	3.8 U
Endrin ketone	3.9 U	4.2 U	3.9 U	4 U	3.8 U
gamma-BHC (Lindane)	2 U	2.2 U	2 U	2.1 U	2 U
gamma-Chlordane	2 U	2.2 U	2 U	2.1 U	2 U
Heptachlor	2 U	2.2 U	2 U	2.1 U	2 U
Heptachlor epoxide	2 U	2.2 U	2 U	2.1 U	2 U
Methoxychlor	20 U	22 U	20 U	21 U	20 U
Toxaphene	200 U	220 U	200 U	210 U	200 U
Inorganics, ug/kg					
Aluminum	4350 J	2580 J	1610 J	9290 J	8830 J
Antimony	7 U	7.4 U	7.2 U	7.2 U	6.9 U
Arsenic	0.5 B	0.52 B	0.81 B	1.4 J	1.1 B
Barium	19.5 B	7.2 B	4.9 J	10.9 J	6.5 J
Beryllium	0.07 U	0.05 U	0.09 J	0.21 B	0.12 B
Cadmium	0.73 U	0.78 U	0.75 U	0.75 U	0.72 U
Calcium	239 B	329 B	22.3 J	15.4 J	7.1 J
Chromium	3.8	1.6 B	2.9 U	11.8	9.2
Cobalt	0.69 U	0.73 U	0.71 U	0.7 U	0.67 U
Copper	0.48 U	0.49 U	0.34 U	0.37 B	0.33 U
Iron	260 J	140 J	184 J	369 J	552 J
Lead	5 J	2.5 J	4.4 J	6.1 J	6.5 J
Magnesium	69.2 U	19 B	15.6 U	29.6 B	77.4 B
Manganese	0.9 B	0.35 B	0.56 B	0.57 B	1.1 B
Mercury	0.03 U	0.03 U	0.03 U	0.08	0.05
Nickel	3.9 B	3.6 U	3.5 U	5.4 B	3.8 B
Potassium	105 B	111 U	136 B	107 U	103 U
Selenium	0.54 U	0.57 U	0.56 U	1.2	0.53 U
Silver	0.62 U	0.65 U	0.63 U	0.63 U	0.6 U
Sodium	16.1 U	12.2 U	6.9 U	5.1 U	8.8 U
Thallium	0.43 U	0.45 U	0.44 U	0.44 U	0.42 U
Vanadium	6 B	1.8 B	2.4 B	5.8 B	7 B
Zinc	0.75 B	0.28 U	0.31 B	0.37 B	0.46 B

APPENDIX C-2

SUMMARY OF GROUNDWATER ANALYTICAL RESULTS

Table C-2. Summary of Groundwater Analytical Results
Study Area 24

BRAC Environmental Site Screening Report
Naval Training Center, Orlando
Orlando, FL

Sample ID	24G00101		24G00201		24G00301		24G00401		24G00501	
Lab ID	G7716015		G7716016		G7607010		G7494002		G7494001	
Sampling Date	1-Jun-95		1-Jun-95		18-May-95		4-May-95		4-May-95	
Volatile organics, ug/L										
1,1,1-Trichloroethane	1	U	1	U	1	U	1	U	1	U
1,1,2,2-Tetrachloroethane	1	U	1	U	1	U	1	U	1	U
1,1,2-Trichloroethane	1	U	1	U	1	U	1	U	1	U
1,1-Dichloroethane	1	U	1	U	1	U	1	U	1	U
1,1-Dichloroethene	1	U	1	U	1	U	1	U	1	U
1,2-Dibromo-3-chloropropane	1	U	1	U	1	U	1	U	1	U
1,2-Dibromoethane	1	U	1	U	1	U	1	U	1	U
1,2-Dichloroethane	1	U	1	U	1	U	1	U	1	U
1,2-Dichloropropane	1	U	1	U	1	U	1	U	1	U
2-Butanone	5	UR	5	UR	5	UR	5	UR	5	UR
2-Hexanone	5	U	5	U	5	UR	5	U	5	U
4-Methyl-2-pentanone	5	U	5	U	5	U	5	U	5	U
Acetone	9	UR	8	UR	9	UR	5	UR	5	UR
Benzene	1	U	1	U	1	U	1	U	1	U
Bromochloromethane	1	U	1	U	1	U	1	U	1	U
Bromodichloromethane	1	U	1	U	1	U	1	U	1	U
Bromoform	1	U	1	U	1	U	1	U	1	U
Bromomethane	1	U	1	U	1	U	1	U	1	U
Carbon disulfide	1	U	1	U	1	U	1	U	1	U
Carbon tetrachloride	1	U	1	U	1	U	1	U	1	U
Chlorobenzene	1	U	1	U	1	U	1	U	1	U
Chloroethane	1	U	1	U	1	U	1	U	1	U
Chloroform	1	U	1	U	1	U	1	U	1	U
Chloromethane	1	U	1	U	1	U	1	U	1	U
cis-1,2-Dichloroethene	1	U	1	U	1	U	1	U	1	U
cis-1,3-Dichloropropene	1	U	1	U	1	U	1	U	1	U
Dibromochloromethane	1	U	1	U	1	U	1	U	1	U
Ethylbenzene	1	U	1	U	1	U	1	U	1	U
Methylene chloride	2	U	8	U	2	U	2	U	2	U
Styrene	1	U	1	U	1	U	1	U	1	U
Tetrachloroethene	1	U	1	U	1	U	1	U	1	U
Toluene	1	U	1	U	1	U	1	U	1	U
trans-1,2-Dichloroethene	1	U	1	U	1	U	1	U	1	U
trans-1,3-Dichloropropene	1	U	1	U	1	U	1	U	1	U
Trichloroethene	1	U	1	U	1	U	1	U	1	U
Vinyl chloride	1	U	1	U	1	U	1	U	1	U
Xylene (total)	1	U	1	U	1	U	1	U	1	U
Semivolatile organics, ug/L										
1,2,4-Trichlorobenzene	10	U	10	U	10	U	10	U	10	U
1,2-Dichlorobenzene	1	U	1	U	1	U	1	U	1	U
1,3-Dichlorobenzene	1	U	1	U	1	U	1	U	1	U
1,4-Dichlorobenzene	1	U	1	U	1	U	1	U	1	U
2,2'-oxybis(1-Chloropropane)	10	U	10	U	10	U	10	U	10	U
2,4,5-Trichlorophenol	25	U	25	U	25	U	25	U	25	U
2,4,6-Trichlorophenol	10	U	10	U	10	U	10	U	10	U
2,4-Dichlorophenol	10	U	10	U	10	U	10	U	10	U
2,4-Dimethylphenol	10	U	10	U	10	U	10	U	10	U
2,4-Dinitrophenol	25	U	25	U	25	UJ	25	U	25	U
2,4-Dinitrotoluene	10	U	10	U	10	U	10	U	10	U
2,6-Dinitrotoluene	10	U	10	U	10	U	10	U	10	U
2-Chloronaphthalene	10	U	10	U	10	U	10	U	10	U
2-Chlorophenol	10	U	10	U	10	U	10	U	10	U

Table C-2. Summary of Groundwater Analytical Results
Study Area 24

BRAC Environmental Site Screening Report
Naval Training Center, Orlando
Orlando, FL

Sample ID	24G00101		24G00201		24G00301		24G00401		24G00501	
Lab ID	G7716015		G7716016		G7607010		G7494002		G7494001	
Sampling Date	1-Jun-95		1-Jun-95		18-May-95		4-May-95		4-May-95	
2-Methylnaphthalene	10	U	10	U	10	U	10	U	10	U
2-Methylphenol	10	U	10	U	10	U	10	U	10	U
2-Nitroaniline	25	U	25	U	25	U	25	U	25	U
2-Nitrophenol	10	U	10	U	10	U	10	U	10	U
3,3'-Dichlorobenzidine	10	U	10	U	10	U	10	U	10	U
3-Nitroaniline	25	U	25	U	25	U	25	U	25	U
4,6-Dinitro-2-methylphenol	25	U	25	U	25	U	25	U	25	U
4-Bromophenyl-phenylether	10	U	10	U	10	U	10	U	10	U
4-Chloro-3-methylphenol	10	U	10	U	10	U	10	U	10	U
4-Chloroaniline	10	U	10	U	10	U	10	U	10	U
4-Chlorophenyl-phenylether	10	U	10	U	10	U	10	U	10	U
4-Methylphenol	10	U	10	U	10	U	10	U	10	U
4-Nitroaniline	25	U	25	U	25	U	25	U	25	U
4-Nitrophenol	25	U	25	U	25	U	25	U	25	U
Acenaphthene	10	U	10	U	10	U	10	U	10	U
Acenaphthylene	10	U	10	U	10	U	10	U	10	U
Anthracene	10	U	10	U	10	U	10	U	10	U
Benzo(a)anthracene	10	U	10	U	10	U	10	U	10	U
Benzo(a)pyrene	0.2	U	0.2	U	0.2	U	0.2	UR	0.2	U
Benzo(b)fluoranthene	10	U	10	U	10	U	10	U	10	U
Benzo(g,h,i)perylene	10	U	10	U	10	U	10	U	10	U
Benzo(k)fluoranthene	10	U	10	U	10	U	10	U	10	U
bis(2-Chloroethoxy)methane	10	U	10	U	10	U	10	U	10	U
bis(2-Chloroethyl)ether	10	U	10	U	10	U	10	U	10	U
bis(2-Ethylhexyl)phthalate	2		1	U	1	U	1		1	U
Butylbenzylphthalate	10	U	10	U	10	U	10	U	10	U
Carbazole	10	U	10	U	10	U	10	U	10	U
Chrysene	10	U	10	U	10	U	10	U	10	U
Di-n-butylphthalate	10	U	10	U	10	U	10	U	10	U
Di-n-octylphthalate	7	J	10	U	10	U	10	U	10	U
Dibenz(a,h)anthracene	10	U	10	U	10	U	10	U	10	U
Dibenzofuran	10	U	10	U	10	U	10	U	10	U
Diethylphthalate	10	U	10	U	10	U	10	U	10	U
Dimethylphthalate	10	U	10	U	10	U	10	U	10	U
Fluoranthene	10	U	10	U	10	U	10	U	10	U
Fluorene	10	U	10	U	10	U	10	U	10	U
Hexachlorobenzene	1	U	1	U	1	U	1	U	1	U
Hexachlorobutadiene	10	U	10	U	10	U	10	U	10	U
Hexachlorocyclopentadiene	10	U	10	U	10	U	10	U	10	U
Hexachloroethane	10	U	10	U	10	U	10	U	10	U
Indeno(1,2,3-cd)pyrene	10	U	10	U	10	U	10	U	10	U
Isophorone	10	U	10	U	10	U	10	U	10	U
N-Nitroso-di-n-propylamine	10	U	10	U	10	U	10	U	10	U
N-Nitrosodiphenylamine (1)	10	U	10	U	10	U	10	U	10	U
Naphthalene	10	U	10	U	10	U	10	U	10	U
Nitrobenzene	10	U	10	U	10	U	10	U	10	U
Pentachlorophenol	1	U	1	U	1	U	1	U	1	U
Phenanthrene	10	U	10	U	10	U	10	U	10	U
Phenol	10	U	10	U	10	U	10	U	10	U
Pyrene	10	U	10	U	10	U	10	U	10	U
Pesticides/PCBs, ug/L										
4,4'-DDD	0.1	U	0.1	U	0.1	UJ	0.1	UJ	0.1	UJ
4,4'-DDE	0.1	U	0.1	U	0.1	UJ	0.1	UJ	0.1	UJ

Table C-2. Summary of Groundwater Analytical Results
Study Area 24

BRAC Environmental Site Screening Report
Naval Training Center, Orlando
Orlando, FL

Sample ID	24G00101		24G00201		24G00301		24G00401		24G00501	
Lab ID	G7716015		G7716016		G7607010		G7494002		G7494001	
Sampling Date	1-Jun-95		1-Jun-95		18-May-95		4-May-95		4-May-95	
4,4'-DDT	0.1	U	0.1	U	0.1	UJ	0.1	UJ	0.1	UJ
Aldrin	0.05	U	0.05	U	0.05	UJ	0.05	UJ	0.05	UJ
alpha-BHC	0.05	U	0.05	U	0.05	UJ	0.05	UJ	0.05	UJ
alpha-Chlordane	0.05	U	0.05	U	0.05	UJ	0.05	UJ	0.05	UJ
Aroclor-1016	0.5	U	0.5	U	0.5	UJ	0.5	UJ	0.5	UJ
Aroclor-1221	0.5	U	0.5	U	0.5	UJ	0.5	UJ	0.5	UJ
Aroclor-1232	0.5	U	0.5	U	0.5	UJ	0.5	UJ	0.5	UJ
Aroclor-1242	0.5	U	0.5	U	0.5	UJ	0.5	UJ	0.5	UJ
Aroclor-1248	0.5	U	0.5	U	0.5	UJ	0.5	UJ	0.5	UJ
Aroclor-1254	0.5	U	0.5	U	0.5	UJ	0.5	UJ	0.5	UJ
Aroclor-1260	0.5	U	0.5	U	0.5	UJ	0.5	UJ	0.5	UJ
beta-BHC	0.05	U	0.05	U	0.05	UJ	0.05	UJ	0.05	UJ
delta-BHC	0.05	U	0.05	U	0.05	UJ	0.05	UJ	0.05	UJ
Dieldrin	0.1	U	0.1	U	0.1	UJ	0.1	UJ	0.1	UJ
Endosulfan I	0.05	U	0.05	U	0.05	UJ	0.05	UJ	0.05	UJ
Endosulfan II	0.1	U	0.1	U	0.1	UJ	0.1	UJ	0.1	UJ
Endosulfan sulfate	0.1	U	0.1	U	0.1	UJ	0.1	UJ	0.1	UJ
Endrin	0.1	U	0.1	U	0.1	UJ	0.1	UJ	0.1	UJ
Endrin aldehyde	0.1	U	0.1	U	0.1	UJ	0.1	UJ	0.1	UJ
Endrin ketone	0.1	U	0.1	U	0.1	UJ	0.1	UJ	0.1	UJ
gamma-BHC (Lindane)	0.05	U	0.05	U	0.05	UJ	0.05	UJ	0.05	UJ
gamma-Chlordane	0.05	U	0.05	U	0.05	UJ	0.05	UJ	0.05	UJ
Heptachlor	0.05	U	0.05	U	0.05	UJ	0.05	UJ	0.05	UJ
Heptachlor epoxide	0.05	U	0.05	U	0.05	UJ	0.05	UJ	0.05	UJ
Methoxychlor	0.5	U	0.5	U	0.5	UJ	0.5	UJ	0.5	UJ
Toxaphene	5	U	5	U	5	UJ	5	UJ	5	UJ
Inorganics, ug/L										
Aluminum	24600		936		68400		4580		1620	
Antimony	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U
Arsenic	2.4	J	4.3	J	4.1	B	1.9	U	2.7	B
Barium	202	J	42.7	J	145	B	21.5	B	10	B
Beryllium	0.95	J	0.14	J	3.6	B	0.15	B	0.14	B
Cadmium	3.1	U	3.1	U	3.1	U	3.1	U	3.1	U
Calcium	62300		397000		7920		832	B	13900	
Chromium	23.6		3.1	U	91.1		5.4	U	5.2	U
Cobalt	15.8	J	2.9	UJ	4.7	B	2.9	U	2.9	U
Copper	1.4	U	1.4	U	5.3	U	1.4	U	1.4	U
Iron	59900		7940		10000		272		809	
Lead	2.4	B	1.5	UJ	16		1.9	B	1.5	U
Magnesium	32800		12500		4940	B	738	B	2290	B
Manganese	243		42.3		12.8	B	1.5	U	3.7	U
Mercury	0.12	U	0.12	U	0.35		0.12	U	0.12	U
Nickel	14.2	U	14.2	U	36	B	14.2	U	14.2	U
Potassium	2950	J	5950		1010	B	625	B	744	B
Selenium	2.3	UJ	22.9	UJ	2.5	J	2.3	U	2.3	U
Silver	2.6	U	2.6	U	2.6	U	2.6	U	2.6	U
Sodium	16800		14200		4230	B	2480	B	9430	
Thallium	1.8	UJ	1.8	UJ	1.8	UJ	1.8	U	1.8	UJ
Vanadium	49.6	B	4.2	B	202		22.9	B	7.1	U
Zinc	13.4	B	4.4	B	6.7	U	4.4	U	2.3	U
General Chemistry, mg/L										
Total Suspended Solids	500		3		366		48		16	

NOTES TO SUMMARY OF ANALYTICAL RESULTS TABLES

BRAC Environmental Site Screening Report
Naval Training Center
Orlando, FL

NA = Identified parameter not analyzed.
Sample ID = Sample Identifier
Lab ID = Laboratory identifier

Units:

mg/kg	milligram per kilogram
ug/kg	microgram per kilogram
mg/L	milligram per liter
ug/L	microgram per liter
pCi/L	picocuries per liter

The following standard validation qualifiers are used in this Appendix.

U	The analyte/compound was analyzed for but was not detected above the reported sample quantitation limit
J	The analyte/compound was positively identified and the associated numerical value is an estimated concentration of the analyte/compound in the sample.
N	The analysis indicates the presence of a compound for which there is presumptive evidence to make a tentative identification.
JN	The analysis indicates the presence of a compound that has been tentatively identified, and the associated numerical value represents an estimated concentration.
UJ	The analyte/compound was not detected above the reported sample quantitation limit. The reported quantitation limit, however, is approximate and may or may not represent the actual limit of quantitation necessary to accurately measure the analyte/compound in the sample.
R	The sample results are rejected because of serious deficiencies in meeting quality control criteria.

The following laboratory qualifiers are typically dropped upon validation but are retained here to provide additional information on their associated numerical values.

B	The analyte was positively identified and the associated numerical value is an estimated concentration because the detection was below the contract required detection limit (CRDL) and above the instrument detection limit.
E	The reported value for the compound exceeds the linear calibration range for that compound. Therefore, the sample have been reanalyzed at an appropriate dilution (sample identifiers ending in DL).
D	The reported value for the compound has been quantified at a secondary dilution factor. This value typically is used in favor of E qualified values. When this applies, the E qualifier are flagged ER; D qualified values that are rejected in favor of the original results are flagged DR.